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January 1, 1954

NR 088-006
Cont. No. NONR-609(03)

Sir,

Herewith is the yearly progress report of the project Experiments
in the design of the four basic types of Map symbols being undertaken by
the Cartographic Laboratory of Yale University.

Sincerely,

Robert L. Williams
Project Director

Title

Experiments in the Design of the Four Basic Types of Map Symbols

General and specific objectives of the problem

Experiments in the design of the four basic types of map symbols - spot symbols, line symbols, overall pattern symbols and word symbols - aimed at formulating specifications for their selection as to size, color and shape in order for them to best convey desired meanings to the greatest number of users.

Spot symbols

The project aims to establish tables of values for these symbols that will tell the cartographer the following facts:

1. How any one symbol of the same shape and color will have to vary in size in order to visually represent a scale of values from one to ten.
2. What effect the addition of color will have in determining the user's evaluation of such a symbol. The project seeks to find out what should be the proportionate size of different colored symbols of the same shape if they are to represent a predetermined value.
3. How must different shaped symbols be varied in size in order to represent a single value to the average user. This part of the testing has been completed and will be discussed later in the report.
4. What will be the effect on interpretation of symbols if all three factors - size, shape and color - are varied.

Line symbols

The project seeks to establish tables for line symbols that will parallel the tables described for spot symbols.

Overall pattern symbols

The project seeks to establish tables showing what percent of the total area a pattern should cover to represent a scale of values from one to ten, and how variations in pattern and in color will affect these values.

Word symbols

The project is attempting to determine the relative emphasis imparted to words on a map by the size, design and color of the letters.

Progress

The spot symbols and the tone symbols have been printed and some of the tests in phase one have been completed.

The tests are being given to five groups:

Sixth, ninth and eleventh grade students; a group of cartographic students at the University of Wisconsin and a group of advanced design students. The series of tests so far completed are designed to show what size different shaped symbols of the same color need to be in order to appear equivalent. The statistical analysis of the results of these tests is not completed, but visual examination of the graphed results show that there is little or no difference in the answers given by the sixth graders and the design students. This would indicate that there are some basic rules as to how these shapes are seen by the average person. This encourages us to hope that there will be results from these experiments that will prove of real worth in the design of many types of visual displays.

Bibliography of papers published

None

Other information

a. Changes in direction or emphasis and project title.

None since the last report

b. Personnel changes

The assistant, Gordon Ellis, has left to work for Richard E. Harrison in New York and has been replaced by Mrs. Pao Huang

c. Number of graduate students engaged on project

None

d. Difficulties or problems encountered

It has been found that the time needed to arrange for and to give the tests is greater than was anticipated. The approval of the school authorities has to be obtained and a time set that will least upset the students schedule. The work is not as far along as we had hoped it would be by this time and we are therefore asking for a one year no-cost extension of the contract.

e. Plans for the coming year

The plan is to continue the work as outlined.

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